

## PATENT

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IN THE CLAIMS

Kindly cancel claim 16 without prejudice to Applicants' right to pursue the claim  
in one or more other patent applications.

Kindly amend claims 1 and 3-15 as follows:

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A2  
Claim 1. (Amended) A nucleic acid encoding *Tetrahymena* delta-6-desaturase and  
comprising at least 8 nucleotides from SEQ ID NO.: 1.

Claim 3. (Amended) A nucleic acid as claimed in claim 1, which is obtained from  
*Tetrahymena thermophila*.

Claim 4. (Amended) A nucleic acid as claimed in claim 1 which is DNA.

Claim 5. (Amended) A nucleic acid as claimed in claim 1, which is a DNA having a  
nucleic acid sequence as depicted in SEQ ID. NO.: 1 from position 33 to position 1091.

Claim 6. (Amended) A nucleic acid as claimed in claim 1 comprising one or more  
noncoding sequences.

Claim 7. (Amended) An isolated nucleic acid comprising at least 8 nucleotides from SEQ  
ID NO.: 3.

Claim 8. (Amended) A vector comprising a nucleic acid comprising SEQ ID NO.: 1 or  
functional variants thereof having at least 70% sequence identity with SEQ ID NO.: 1.

Claim 9. (Amended) The vector of claim 8, wherein the nucleic acid is functionally  
combined with a constitutive promoter.

Claim 10. (Amended) A process for preparing a nucleic acid comprising SEQ ID NO.: 1 or functional variants thereof having at least 70% sequence identity with SEQ ID NO.: 1, the process comprising chemically synthesizing the nucleic acid comprising SEQ ID NO.: 1 or functional variants thereof having at least 70% sequence identity with SEQ ID NO.: 1.

AD

Claim 11. (Amended) A polypeptide comprising an amino acid sequence comprising at least 6 amino acids from SEQ ID NO.: 2.

Claim 12. (Amended) A process for preparing a polypeptide comprising SEQ ID NO.: 2 or functional variants thereof having at least 70% sequence identity with SEQ ID NO.: 2, the process comprising expressing a nucleic acid comprising SEQ ID NO.: 1 or functional variants thereof having at least 70% sequence identity with SEQ ID NO.: 1 in an expression system.

Claim 13. (Amended) A specific antibody directed against a polypeptide comprising SEQ ID NO.: 2 or functional variants thereof having at least 70% sequence identity with SEQ ID NO.: 2.

Claim 14. (Amended) A transgenic, nonhuman organism comprising a nucleic acid comprising SEQ ID NO.: 1 or functional variants thereof having at least 70% sequence identity with SEQ ID NO.: 1.

Claim 15. (Amended) The transgenic organism of claim 14 in which the transgenic organism is a plant or a ciliate.

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Kindly add the following new claims 17-31:

Claim 17. (NEW) The nucleic acid of claim 1 wherein the *Tetrahymena* delta-6-desaturase comprises a polypeptide comprising SEQ ID NO.: 2 or functional variants thereof having at least 70% sequence identity with SEQ ID NO.: 2.

Claim 18. (NEW) The nucleic acid of claim 1 comprising functional variants having at least 70% sequence identity with SEQ ID NO.: 1.

Claim 19. (NEW) The nucleic acid of claim 4 in which the DNA is double-stranded DNA.

AB

Claim 20. (NEW) The vector of claim 8 in which the vector is an expression vector.

Claim 21. (NEW) The vector of claim 8 wherein the nucleic acid is functionally combined with an inducible promoter.

Claim 22. (NEW) The vector of claim 9 wherein the nucleic acid is functionally combined with an inducible promoter.

Claim 23. (NEW) The vector of claim 9 wherein the nucleic acid further comprises a termination signal.

Claim 24. (NEW) The vector of claim 21 wherein the nucleic acid further comprises a termination signal.

Claim 25. (NEW) The vector of claim 22 wherein the nucleic acid further comprises a termination signal.

Claim 26. (NEW) A process for preparing a nucleic acid comprising SEQ ID NO.: 1 or functional variants thereof having at least 70% sequence identity with SEQ ID NO.: 1, the process comprising isolating the nucleic acid from a gene library using a probe which hybridizes to the nucleic acid.

Claim 27. (NEW) The process of claim 20 in which the expression vector is in a host organism.

AB Claim 28. (NEW) A method of enriching delta-6-desaturase dependent fatty acids in ciliates, the method comprising:

inserting a vector comprising a nucleic acid comprising SEQ ID NO.: 1, or functional variants thereof having at least 70% sequence identity with SEQ ID NO.: 1, into a ciliate; and

expressing the nucleic acid to enrich delta-6-desaturase dependent fatty acids in the ciliate.

Claim 29. (NEW) The method of claim 28 in which the vector comprises at least one inducible promoter.

Claim 30. (NEW) An isolated and purified nucleic acid consisting essentially of SEQ ID NO.: 1 or functional variants thereof.

Claim 31. (NEW) An isolated and purified nucleic acid consisting essentially of SEQ ID NO.: 3 or functional variants thereof.

Claim 32. (NEW) An isolated and purified polypeptide consisting essentially of SEQ ID NO. 2 or functional variants thereof.

Claim 33. (NEW) A nucleic acid as claimed in claim 1 which is RNA.

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